



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,101	04/17/2002	Andrew Mills	SGU-0050	7501

7590 02/21/2006
Fleshner & Kim
PO Box 221200
Chantilly, VA 20153-1200

EXAMINER

STAIKOVICI, STEFAN

ART UNIT	PAPER NUMBER
----------	--------------

1732

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/069,101	MILLS ET AL.	
	Examiner	Art Unit	
	Stefan Staicovici	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-23,32-40 and 42-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-23,34-40,43-46,49,51-53 and 61-64 is/are allowed.
- 6) ☒ Claim(s) 32,33,42,47,48,50,54-60 and 65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 13, 2005 has been entered.

Response to Amendment

2. Applicants' amendment filed February 1, 2006 has been entered. Claims 17-23, 32-40 and 42-65 are pending in the instant application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 42, 47-48, 50, 54, 59-60 and 65 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 42, 50, 54, 59-60 and 65, the limitation of “adjusting a braid angle of the braided carbon fiber material” does not appear to have support in the original disclosure. Although the original disclosure does appear to have support for a “braided carbon fiber material” the original disclosure does not appear to have support for “adjusting a braid angle of the braided carbon fiber material.”

In claim 47, the limitation of “not a maximal expansion of the core of expansible material” does not appear to have support in the original disclosure.

In claims 48, the limitation of “the cored reinforcement is deposited at a point during an expansion process of the core of expansible material” does not appear to have support in the original disclosure.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 32 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 01-316235 in view of Swenor *et al.* (US Patent No. 5,516,271).

JP 01-316235 teaches the basic claimed process for molding a composite article including, depositing a fiber reinforced foam body (10) having a foam core and a fiber sheath (see Figure 2) (envelope of strength-giving fibers surrounding a core of expansible material of a substantially constant cross-section) into a mold (12), injecting a resin into said mold (12),

expanding said foam core of said foam body (10) such that said foam body adapts to the shape of the mold cavity and said resin impregnates said fibers of said foam body (10) and, curing said resin to form said composite article (see Abstract).

Regarding claim 32, JP 01-316235 does not teach applying a vacuum to the mold cavity. Swenor *et al.* ('271) teach a resin transfer molding process including, applying a vacuum to a mold cavity (see col. 6, lines 3-35). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a vacuum as taught by Swenor *et al.* ('271) to the mold cavity in the process of JP 01-316235 because of known advantages such as improved resin flow and reduced porosity, hence providing for an improved molded product.

In regard to claims 55-58, JP 01-316235 teaches expanding said foam core, hence said wrapped fiber sheath also expands to adapt to the mold cavity. Further, it is noted that said foam core includes channels, hence having a non-constant cross-section. Further, JP 01-316235 teaches that said foam body (12) corresponds to the mold cavity with the exception of gap (14). Furthermore, it is submitted that when applying a vacuum, due to the reduced pressure a foam will expand due to residual blowing agent that is present.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 01-316235 in view of Swenor *et al.* (US Patent No. 5,516,271) and in further view of Slysh (US Patent No. 4,012,549).

JP 01-316235 in view of Swenor *et al.* ('271) teach the basic claimed process as described above.

Regarding claim 33, JP 01-316235 in view of Swenor *et al.* ('271) does not teach introducing a fabric insert in order to provide localized strengthening. Slysh ('549) teaches a

Art Unit: 1732

molded structure including, fabric strip inserts (18) that extend in a discontinuous manner, hence resulting in an improved product (see col. 2, lines 37-45). Therefore it would have been obvious for one of ordinary skill in the art to have provided fabric strip inserts as taught by Slysh ('549) in the mold in the process of JP 01-316235 in view of Swenor *et al.* ('271) because, Slysh ('549) teaches that such strips increase the strength and quality of the molded product, hence providing for an improved product. Further, it is submitted that the "insert" in the process of JP 01-316235 in view of Swenor *et al.* ('271) and in further view of Slysh ('549) is placed before, during or after positioning the fiber material in the mold because said "insert" becomes an integral part of said resulting molded product by the process of JP 01-316235 in view of Swenor *et al.* ('271) and in further view of Slysh ('549) and as such must be placed in the mold prior to curing, hence before, during or after positioning the fiber material in the mold.

Allowable Subject Matter

8. Claims 17-23, 34-40, 43-46, 49, 51-53 and 61-64 are allowed.

Response to Arguments

9. Applicants' arguments filed December 13, 2005 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

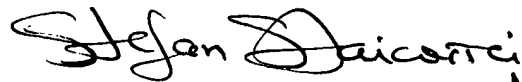
Art Unit: 1732

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Colaianni, can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD



Primary Examiner

2/16/06

AU 1732

February 16, 2006